ROYAL DUTCH Gazelle

Makes you feel like cycling!

GAZELLE WITH IMPULSE SYSTEM

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INTRODUCTION

Many thanks for choosing a Gazelle with the Impulse system. This bike provides you with assistance on the move by means of an innovative electric drive system. This will make your cycling a great deal more enjoyable when riding uphill, into headwinds or carrying your belongings. You can choose yourself how much extra push you would like.

This user manual will help you discover all the advantageous features of your bike and how to use them as you wish.

We strongly advise you to read through this manual and the general user manual in their entirety. Keep the user manual so you can refer to it in future for information.

This manual is written in general terms. This means that certain articles will apply to your bike while others will not.

USER MANUAL LAYOUT

In the *Quick start* included with your bike, you will find brief instructions if you want to get going at once. Even if you want to start cycling at once, you need to read this chapter through in every case for your own safety. The chapters that follow describe the major components of the bike in comprehensive detail.

In *chapter 10 - "Technical specifications"*, you will find technical data for your bike. This user manual only covers specific information about your Gazelle with the Impulse system.

GENERAL USER MANUAL

You can download the general user manual for the bike from the **www.gazellebikes.com/service/manuals** website.

1 SAFETY

In the user manual you will find the following symbols that draw attention to hazards or important information

WARNING
about potential injury, increased fall or other injury risk.

REFERENCE
to potential damage to property or the environment.

IMPORTANT SUPPLEMENTARY INFORMATION
or special information about the use of the bike.

1.1 GENERAL

Take care when children are around, especially if they are able to insert objects through apertures in the motor housing. There is a risk of an electric shock.

If you think your e-bike is no longer safe to use, switch off the system and take it to your Gazelle specialist for inspection. It is no longer safe to use if current-carrying components or the battery show visible signs of damage.

1.2 LEGAL REQUIREMENTS

Like all cycles, the bike must comply with the requirements of the national highway code.

The legal requirements set out below are applicable to the bike:

- The motor may only be used to assist pedalling, i.e. it must only “help” when the bike user applies effort to the pedals him or herself.
- The average motor power rating must not exceed 250 W.
- As speed increases motor power must continue to drop progressively.
- The motor must cut out at (approximately) 25 km/h.

See also EC Declaration of conformity on page 32.

1.2.1 Significance for the user

There is no obligation to wear a helmet. However for your own safety we advise you not to cycle without a helmet.

A separate driving licence is not required for an electric bike. Insurance is not obligatory for an e-bike.

There is no age restriction on using an e-bike.

Cycling on cycle tracks is regulated in the same way as for conventional bikes.

These regulations apply to your bike when using it within the Netherlands. Different provisions may apply in other countries.

Before using your bike abroad be sure to make enquiries about which laws apply.

1.3 BATTERY

Never attempt to repair a battery: this requires specialist knowledge. If the battery is damaged you are to contact your Gazelle specialist. He will discuss a course of action with you.

You must not transport a damaged battery. Safety cannot be guaranteed in respect of damaged batteries. Scratches and minor damage on the housing do not constitute serious damage.

Have the battery checked by your Gazelle specialist should you have a spill with the bike. You also need to go to your Gazelle specialist if you have dropped the battery. Damaged batteries must not be charged nor must they be used again.

The battery and the charger must be placed on a flat non-flammable surface. The battery and charger must not be covered. There must be no mildly flammable materials in their immediate vicinity. This also applies if the battery is being charged in the bike. In this case you must park the bike such that any potential fire cannot spread rapidly.

Lithium reacts very strongly on direct contact with water. That is why extra care is in order with battery that have become damaged and/or wet

The battery itself must not be extinguished with water, only the surroundings which may be on fire. Metal powder fire extinguishers (class D) are more suitable. If the battery can be carried outdoors without danger, the fire can also be smothered using sand.

A battery must not be charged if it is not working correctly.

Do not charge the battery for an extended period if it is not being used.

In the event of smoke or an unusual odour, you must pull the charger plug out of the mains socket at once.

The battery is liable to heat up during the charging process. The temperature may rise to a maximum of 45 °C. If the battery gets hotter you must discontinue the charging process immediately.

The bike operates at low voltage (36 V). You must never attempt to use the bike with a power source other than the original battery that belongs with it. You will find descriptions of permissible batteries in *chapter 10 - "Technical specifications"*.

Use the charger originally supplied with the bike exclusively.

Take care not to drop the battery when removing it from the bike. This can actually damage the battery housing irreparably.

1.4 MOTOR

Be aware that the motor can heat up on a long ride, especially uphill. Take care not to touch the motor with your hands feet or legs. You could sustain burns as a result.

Opening covers or removing components can expose live parts. Connectors might also be electrically conductive. Maintenance or repair work on an open motor must only be carried out by an accredited cycle repairer.

1.5 WORK INVOLVING SETTINGS/ MAINTENANCE/REPAIRS

When carrying out settings, as well as maintenance or cleaning jobs, be aware that cables must not be pinched and/or kinked nor must they be damaged by sharp edges.

Have all fitting work and settings carried out by your Gazelle specialist.

1.6 TRANSPORTING THE BIKE

When transporting your bike we recommend taking the battery out of the bike and carrying it separately.

1.6.1 Transporting the bike by car

If you intend to transport your bike using a cycle carrier, you will also need to ensure that the carrier is suitable for the added weight of the bike as well. In order to spare the carrier and protect the battery against the elements, you are better transporting the latter in the car.

1.6.2 Transporting the bike by train

You can take your bike in trains displaying a bike sign. If you have any questions you can contact the carrier.

1.6.3 Transporting the bike by air

Your bike will generally be subject to the cycle provisions of the airline concerned. Batteries are covered by the law on hazardous goods transport. Accordingly, they must not be transported in passenger aircraft either in the cargo hold or in the cabin. Contact the airline concerned regarding this matter.

2. BIKE CONFIGURATION

3 INITIAL STEPS

3.1 CHECKING NUTS AND BOLTS

Before use check all nuts, bolts and other components are properly secure.

3.2 FITTING PEDALS

It may be the case with your bike that the pedals will needs to be fitted subsequently. The right-hand pedal (marked "R") screws into the right-hand crank clockwise. The left-hand pedal (marked "L") screws into the left-hand crank anticlockwise. Both pedals are to be tightened using an open-ended spanner or Allen key turning towards the front wheel. They are to be torqued to 40 Nm.

The thread in the crank arm can be damaged if the pedal is not screwed in straight.

3.3 ALTERING SADDLE HEIGHT

3.3.1 Clamping screw

If a torque (in Nm) is shown on the seat post clamp, you should tighten the clamping screw to this figure. If no tightening torque is stated, you should tighten an M6 screw (6 mm dia.) and an M5 screw (5 mm dia.) to 5.5 Nm.

3.3.2 Quick-release clamp

To open it you flip the lever 180° – you will then see the word "OPEN". To close it, you flip the lever back 180° – you will then see the word "CLOSE".

It can be established roughly that the saddle is clamped sufficiently securely, if the clamping lever can be closed just using the heel of the hand and a little force. When clamping you will feel increasing resistance in the lever when it is approximately halfway closed. If the seat post is not clamped solidly or securely enough, you will need to tighten the clamping nut or screw with the lever open half a turn clockwise at a time. Close the quick-release clamp and check the saddle again as to whether it is secure enough.

Every time you go cycling and whenever the bike has been left unsupervised, before setting off you need to check all quick-release clamps to ensure they are properly and securely tightened.

3.3.3 Saddle height

Regarding saddle height, there is a simple test: sitting on the saddle, with your leg straight you should be able to reach the lowest pedal position with your heel. Another way of doing it is:
with the ball of your foot resting on the pedal in the lowest position, your leg should be slightly bent at the knee.

4 BATTERY

Your battery is a lithium-ion battery, the most practical form of batteries for this application. One of the main advantages of this type of battery is its low weight for high capacity.

4.1 LUGGAGE CARRIER BATTERY

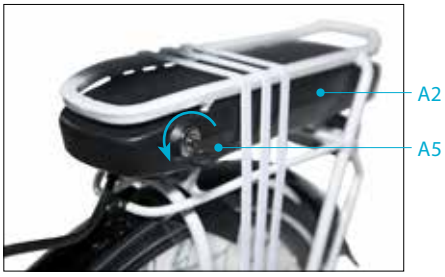
Chapter 4.1 describes operations that apply specifically to the carrier battery. These operations therefore differ from those applicable to the seat tube battery, see *section 4.2 "Seat tube battery"*.

4.1.1 Charging the luggage carrier battery

You can only charge the battery off the bike. The battery can be charged at temperatures ranging between 0 °C and 45°C.

4.1.2 Removing the luggage carrier battery

To remove luggage carrier battery **A2** switch it off and open the lock using key **A5**.



Unlocking luggage carrier battery

Pull the battery out of holder **A1.**

Removing luggage carrier battery

4.1.3 Charging process

Remove the charger included with the bike from its packaging and connect the mains plug to a mains socket (230 to 240 V). Connect the charger to the battery.

For safe charging the charger must be placed on a suitable surface; the substrate must be dry and non-flammable.

As the charging process progresses, the LEDs on the battery start lighting up one by one. Once all five LEDs have gone out the battery is fully charged.

Pull the charger plug out of the mains socket after charging so as to save power.

Damaged batteries must not be charged nor must they be used again.

The battery can heat up during the charging process. The temperature may rise to a maximum of 45°C. If the battery gets hotter you must discontinue the charging process immediately.

You can recharge the battery after every trip. This means you will always be ready to go.

It is best to charge the battery at temperatures between +10°C and +30°C. Charging time becomes longer at lower temperatures. Battery capacity is used less efficiently thus reducing the range of the battery.

The battery will not charge at temperatures above +45°C.

Store and charge your battery indoors or in a heated garage.

Fit the battery in the bike just before setting off.

4.1.4 Fitting the luggage carrier battery

1. Push the battery back into the holder until it clicks into place.

Fitting luggage carrier battery

2. Now turn the key to the right and withdraw it from the lock. The battery is now locked.

Locking luggage carrier battery

3. Check that the battery is securely in place and the key has been removed from the lock.

4.2 SEAT TUBE BATTERY

Chapter 4.2 describes operations that apply specifically to the seat tube battery. These operations therefore differ from those applicable to the carrier battery, see *section 4.1 "Luggage carrier battery"*.

4.2.1 Charging the seat tube battery

You can charge the battery while it is still fitted to the bike, see also the *Seat tube battery quick start* included with your bike.

You can also take the battery out of its holder and charge it externally. We recommend this method at low temperatures, so you can charge the battery in a warmer room. The battery can be charged at temperatures ranging between 0°C and 45°C.

4.2.2 Removing the seat tube battery

1. Hold the battery by the handle, insert the key in the lock and turn the key anticlockwise. The battery is now unlocked. Releasing the battery.

Unlock battery

2. Hold the battery by the handle and swing it out of the bike from the side. Hold the battery tightly so it cannot fall out of its holder.

Remove battery

3. We recommend taking the key out of the lock at this point and keeping it safely so it cannot break off or get lost.

4.2.3 Charging process

Remove the charger included with the bike from its packaging and connect the mains plug to a mains socket (230 to 240 V). Connect the charger to the battery.

For safe charging the charger must be placed on a suitable surface; the substrate must be dry and non-flammable.

As the charging process progresses, the LEDs on the battery start lighting up one by one. Once all five LEDs have gone out the battery is fully charged.

Pull the charger plug out of the mains socket after charging so as to save power.

Damaged batteries must not be charged nor must they be used again.

The battery can heat up during the charging process. The temperature may rise to a maximum of 45 °C. If the battery gets hotter you must discontinue the charging process immediately.

You can recharge the battery after every trip. This means you will always be ready to go.

It is best to charge the battery at temperatures between +10 °C and +30 °C. Charging time becomes longer at lower temperatures. Battery capacity is used less efficiently thus reducing the range of the battery.

The battery will not charge at temperatures above +45°C.

Store and charge your battery indoors or in a heated garage.

Fit the battery in the bike just before setting off.

4.2.4 Fitting the seat tube battery

1. Fit the battery from the left-hand side, tilted by around 45° outwards.

Fitting the battery

2. Push the battery down into the holder until it clicks into place. Now turn the key clockwise and withdraw it from the lock. The battery is now locked.

Locking the battery

3. Check that the battery is securely in place and the key has been removed from the lock.

The sections that follow provide info mation that is identical for the luggage carrier and seat tube batteries.

4.3 BATTERY INFORMATION SYSTEM

On the outside of the battery there is an indicator panel with five LEDs and a battery pushbutton. The LEDs will light up as soon as you press the battery pushbutton. The number of LEDs that light up and the ligh-ting pattern provide information on charge status and battery capacity.

Carrier battery pushbutton

Seat tube battery pushbutton

4.3.1 Checking charge status

If you press the pushbutton briefly, the LEDs will light up and if the charger is connected to the battery you will see the current battery charge status.

Battery indicator		Battery charge status
●●●●●	5 LED's lit	100 – 84%
●●●●●	4 LED's lit	83 – 68%
●●●	3 LED's lit	67 – 51%
●●	2 LED's lit	50 – 34%
●	1 LED lit	33 – 17%
○	1 LED flashing	16 – 0%
●●●●●	5 LED's flashing fast	0% or overload*
●	1e LED flashing fast	Charging fault**

* All 5 LEDs are flashing fast: the battery is a) flat and has cut out or the battery is b) overloaded.

a) Once the battery is flat, it will work briefly after a short rest period and then cut out again. The battery now needs charging.

b) If the battery has been overloaded, it will cut in again after a short rest period and can be used as normal thereafter.

** The 1st LED is flashing fast: this indicates a charging fault. If this is the case you should connect the charger plug to the battery. If the LED keeps on flashing after that, you will need to take the battery to your Gazelle specialist

4.3.2 Checking capacity

If you press the pushbutton for three seconds, the LEDs will show the present capacity of the battery.

Battery indicator		CAPACITY
●●●●●	5 LED's lit	100 – 97%
●●●●●	4 LED's lit	96 – 80%
●●●	3 LED's lit	79 – 60%
●●	2 LED's lit	59 – 40%
●	1 LED lit	39 – 20%
○	1 LED flashing	< 20%

During the winter battery range is reduced on account of the lower temperatures. Fit the battery (from a warm room) in the bike just before setting off. In this way you avoid you range being reduced due to the lower temperatures, see *section 4.5 "Warranty and service life"*.

4.4 BATTERY MANAGEMENT

Battery management monitors the temperature in your battery and warns you of improper use.

Please contact your Gazelle specialist if an external short circuit has been sustained at the contacts or the charger connection.

Always charge the battery under supervision and remove the charger after charging.

4.4.1 Sleep mode

In order to prevent deep discharging, the battery will protect itself by going automatically into sleep mode. After two days at the most without use, battery management will activate sleep mode. The battery will come out of sleep mode if you connect it to the charger or press the pushbutton on the battery.

4.5 WARRANTY AND SERVICE LIFE

A two-year warranty applies to the battery. Should a fault occur during this period, your Gazelle specialist will replace the battery. Normal aging as well as wear and tear of the battery do not constitute a material deficiency.

Battery service life is dependent on various factors. The leading wear-related factors are:

- **The number of charging processes.** According to the technical definition a battery is spent when less than 60% of the original capacity is available, see chapter 4.3.2 “Checking capacity”. If the remaining range is sufficient for you, you can of course keep on using the battery. If the capacity is no longer sufficient for you, you can hand in your battery to your Gazelle specialist for disposal and buy a new battery.

- **The age of the battery.** A battery ages even while in storage.

  This means that even if you don’t use your battery, it will still lose capacity. In everyday use you should allow for the battery aging by around 5 or 3% respectively a year due to aging and charging processes.

  Take care to ensure that the battery does not get too hot. Battery aging increases sharply with temperatures above 40 °C. Being placed directly in the sun’s rays can cause a battery to heat up considerably. Take care to ensure you don’t leave the battery in a hot car and park your bike in the shade during bike rides. If you cannot avoid the heat, please ensure you don’t charge the battery any further as well.

  A fully charged battery ages at an even higher rate at high temperatures than a partially charged one.

- You can also increase the service life of your battery by using the assistance judiciously. Cycle using a low assistance setting. This reduces discharge current, which means the battery will take longer to go flat and hence you will need to charge it less often.

Ensure that the battery is fully charged before your first trip or after an extended period out of use.

4.6 STORAGE

If you are not using the battery for an extended period, you should store it with its charge status at approximately 60% and at a temperature in excess of 10°C. If you do not use the battery for six months you will need to top it up again.

4.7 SHIPMENT

You must not ship batteries! A battery is classified under hazardous goods that can overheat in certain circumstances and could catch fire.

Battery preparation and shipment must only be carried out by your Gazelle specialist. If you have a complaint about your battery, you need to have it dealt with through your Gazelle specialist. Your Gazelle specialist has the facilities to have the battery collected in accordance with the law on hazardous goods transport.

4.8 DISPOSAL

Batteries must not be disposed of via household waste collection. Consumers are under a legal obligation to hand in

spent or damaged batteries at dedicated locations (battery collection point or at your Gazelle specialist).

5 CHARGER

Improper operation can result in damage to the unit or injury.

Use the charger in a dry room only.

Place the charger in a safe, stable position on a suitable surface only.

Do not cover the unit and do not place any objects on it in order to prevent overheating and a fire.

Do not use any other chargers. Use the charger supplied with the bike or one we have accredited exclusively to charge your battery. Before using the charger for the first time read the nameplates affixed to the unit.

The carrier battery can only be charged off the bike.

The seat tube battery in contrast can remain in the bike during the charging process. You can also charge the seat tube battery off the bike.

At lower temperatures we recommend you charge the battery in a warmer room. The battery can be charged at temperatures ranging between 0°C and 45°C.

6 CONTROL UNIT AND DISPLAY

A Gazelle featuring the Impulse system is available with two different control units: Either an LED or an LCD display. With the LED control units the information is indicated using light-emitting diodes whereas the LCD display shows more information.

This is done by showing text and figures on the display. Section 6.1 explains operation using the LED control unit; sections 6.2 and 6.3 explain operation using the LCD display.

6.1 LED CONTROL UNIT

1 Push assist button
2 Increase value
3 Battery charge status indicator
4 Assistance level indicator
5 On/off button
6 Decrease value

The control unit on the handlebar has four buttons and two LED indicator bars. The buttons to set the strength of the assistance are located on the left-hand side of the control unit.

On the right-hand side of the control unit you will see two indicator bars, the top one indicates the real-time battery charge status and the bottom one indicates the assistance level.

Indicator bar for charge status and assistance

The on/off button is below them. It switches the electrical system on and off.

On/off button

At the top of the control unit there is a button for the push assist.

6.1.1 On/off button

The electrical system is switched on and off by pressing the on/off button. The following applies only to bikes with a coaster brake: the system will now perform a system check. During this time the left-hand LED will flash for around two seconds, followed by all LEDs for around 1 second. Now

when you set off, the system will generally recognise a pedal movement in the “drive” and “coaster brake” directions. The system check is complete and you can cycle with assistance as usual.

If you don’t feel any assistance, you need to back-pedal briefly and then pedal forwards again, so the system check is executed. If the LEDs keep on flashing and there is no sign of any assistance, you will need to contact your Gazelle specialist

6.1.2 Push assist

Push assist moves the bike forwards slowly without the need for you to pedal, for instance in a parking facility or if you are wheeling the bike. Press the ⊕-button for three seconds to activate push assist.

Push assist does not act as an aid to setting off.

6.1.3 Buttons for level of motor assistance

You can use the arrow buttons to set the level of motor assistance.

Buttons for level of motor assistance

At each press of an arrow button the strength of motor assistance changes by one level. If you press the up arrow button, the strength of assistance increases by one level, from “no assistance / standby” to the highest level: *POWER*.

Increase motor assistance

If you press the down arrow button, the strength of the assistance will be weaker at each press of the button, from *POWER* down to *STANDBY*, the level with no assistance.

Reduce motor assistance

6.1.4 Assistance level indication

The lower LED bar next to the buttons to set motor assistance level shows how strongly you are being assisted by the motor at that point.

Assistance level indication

Indication	Assistance level
POWER	The right-hand LED in the display is lit. Assistance is operating strongly.
SPORT	The middle LED in the display is lit. Assistance is set to an intermediate level.
ECO	The left-hand LED in the display is lit. Assistance is set to a low level.
STAND-BY	No assistance. The battery indicator is still lit up. ( )

Assistance level

- At the level with the strongest assistance *(POWER)* it is the right-hand LED in the indicator that lights up. Assistance is operating strongly.
- At the level with intermediate assistance *(SPORT)* it is the centre LED in the indicator that lights up. Assistance is set to an intermediate level.
- At the lowest level *(ECO)* it is the left-hand LED in the indicator that lights up. Assistance is operating only at a low level.
- If assistance is switched off (standby), only the battery charge status indicator LEDs will be lit. You now have no assistance at all from the motor.

6.1.5 Battery charge status indicator

You will see the battery charge status indicator above the LED bar indicating assistance level.

Battery charge status indication

Indication	Battery charge status
	100 % – 80 %
	80 % – 60 %
	60 % – 40 %
	40 % – 20 %
	20 % – 10 %
	< 10 %

LED lit
LED flashing
LED off

Battery charge status

The system will be switched off if the battery drops below a minimum charge status. In this case all the LEDs on the control unit will be out.

The system will switch off automatically if your bike has not moved for 10 minutes. If you want to cycle with assistance again, you will need to switch it on again at the control unit.

6.1.6 Diagnosing and remedying faults

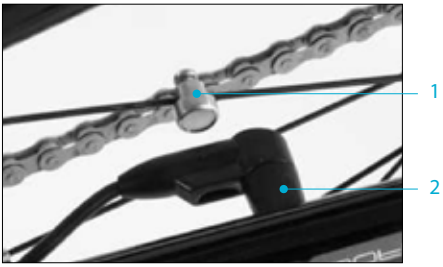
The control unit shows if a fault has occurred. If this is the case the LEDs on the battery indicator will flash in certain patterns:

If all LEDs in the battery indicator flash simultaneously after switching on the system, it means that there is a battery communication fault.

- If this is the case switch the system off and on once more.
- If the fault occurs again, you need to connect the battery momentarily to the charger so battery management can correct the problem. You can also fit another approved battery.
- If the flashing indication does not stop, the system will need to be checked by your Gazelle specialist.

If, immediately after setting off or while cycling, the left-hand LED emits a short flash followed by all the LEDs emitting long flashes, it suggests one of the following faults:

Cause	Remedy
Spoke magnet shifted	Check whether the spoke magnet has moved. The gap between the spoke magnet and the chain stay must be as small as possible (5 mm max.).
Speed sensor faulty	Your Gazelle specialist will check this and carry out a repair if necessary
Cable connection faulty	Your Gazelle specialist will check this and carry out a repair if necessary
Motor unit not making connection to the battery	• Connect the battery to the charger • Fit another battery • Your Gazelle specialist will check the control cables from the battery plug to the motor unit



1 Spoke magnet
2 Sensor on chain stay

Only when riding a bike with a coaster brake: If the left-hand LED emits a long flash initially, followed by all LEDs emitting short flashes, it means that you have yet to carry out the safety test for the “drive” or “coaster brake” pedal positions or that the positions have not been recognised correctly.

- If this is the case move the pedals forward once and back once until you feel resistance. Once the flashing indication disappears you can ride your bike as normal. If the flashing indication does not stop, you can you can ride as if on a bike without motor assistance. Have the fault indication checked and the fault corrected by your Gazelle specialist.

6.2 CONTROL UNIT WITH LCD DISPLAY

You use the ⏻-button to switch the system on or off. Buttons 2, 3 and 4 have different functions, depending on which setting you are at.

1. ⏻ On/off button
2. ⊕ Increase value
3. ⊖ Decrease value
4. SET SET-button

6.2.1 Switching on/off

Pressing the ⏻-button on the control unit once switches the system on. A welcome message appears after a few seconds, followed by the start menu.

After switching on the system will always be in the data mode in which you switched the system off.

To switch your bike off, you need to press the ⏻-button on the control unit.

6.2.2 Push assist

Push assist moves the bike forwards slowly without the need for you to pedal, for instance in a parking facility or if you are wheeling the bike. Press the ⊕-button for three seconds to activate push assist.

Push assist does not act as an aid to setting off.

6.2.3 ⊕ / ⊖ -buttons

- You can use the ⊕ / ⊖ -buttons to set the level of motor assistance.
- At each press of either button the strength of motor assistance changes by one level. If you press the ⊕ -button, the assistance level will increase by one level at each press of the button. If you press the ⊖ -button, the assistance level will weaken by one level at each press of the button.

6.3 LCD DISPLAY

1 Bike speed
2 Assistance level
3 Battery charge status
4 Remaining range

The display in the centre of the handlebar is divided into four different data fields.

- Top left you will see the current bike speed **1**.
- Below that is an indication of the assistance level **2** you have selected, see *section 6.3.1 "Assistance read-out"*.
- Top right the battery symbol **3** informs you of the current charge status of your bike battery, see *section 6.3.2 "Battery charge status read-out"*.
- Below that you will find the remaining range read-out **4**, see *section 6.3.3 Remaining range read-out*.

6.3.1 Assistance read-out

The display indicates the strength of the assistance you are currently getting from the motor.

Display read-out	Assistance
POWER SPORT ECO	Assistance is set to the highest level.
POWER SPORT ECO	Assistance is set to an intermediate level.
POWER SPORT ECO	Assistance is set to a low level.
POWER SPORT ECO	No assistance. The battery symbol is still showing.

You can use the ⊕ / ⊖ -buttons to switch back and forth between the individual assistance levels.

6.3.2 Battery charge status read-out

You will see the battery charge status read-out top right on the display. It uses a battery symbol containing seven bars to indicate the remaining charge in the battery. The lower the battery charge status, the fewer the bars shown:

Display read-out	Battery charge status
	100 – 85,5%
	85,5 – 71,5%
	71,5 – 57,5%
	57,5 – 42,4%
	42,5 – 28,5%
	28,5 – 14,5%

Motor assistance will be switched off if the battery drops below a minimum charge status. When this happens the entire screen will go out.

The system will switch off automatically if your bike has not been used for ten minutes.

If you want to cycle with assistance again, you will need to switch it on again at the control unit.

6.3.3 Remaining range read-out

On the right-hand side below the battery charge status indication there is an read-out of how much further you can cycle with motor assistance. This is the remaining range read-out.

Whenever the conditions change in the course of a ride, due for instance to an uphill stretch after a long level run, the data displayed may also change. Remaining range is dependent on the current battery charge status and the assistance level setting *(POWER, SPORT or ECO)*.

6.3.4 Units

Pressing the SET -button for three seconds enables you to switch between km/h (road speed) / km (remaining range read-out) and mph/mi.

6.3.5 Resetting the odometer

You can reset the odometer by pressing the ⊖ -button for three seconds.

7 DE MOTOR

7.1 OPERATING PROCEDURE

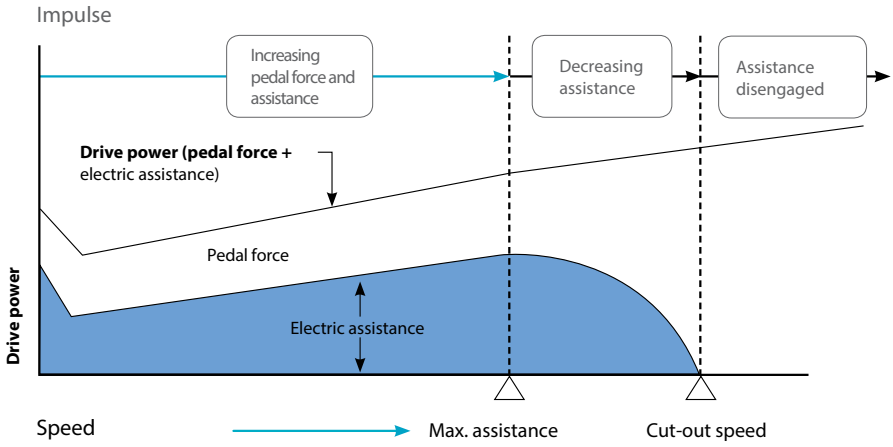
When you switch on the assistance and the bike is set in motion, it will be assisted by the motor.

Shifting gears on the bike is very smooth thanks to the Shift Sensor. Electric assistance cuts out momentarily while shifting, which causes it to take place smoothly and faultlessly.

The amount of tractive effort generated by the motor is dependent on three factors:

- **The amount of effort you apply to the pedals**
  The motor adapts to the power you put in. If you pedal harder, for instance riding uphill or setting off, the power sensor detects this and delivers more power than if you apply only modest pedal effort. The assistance increases proportionately when you pedal harder yourself. The higher you have set the assistance level, the stronger the assistance generated will be.

- **Which assistance level you have selected**
  At the highest assistance level (POWER) the motor will assist you with the most power, but it will also consume the most energy. If you opt for the SPORT level, the motor will deliver slightly less power. If you select ECO, you will have the least assistance, but it will give you the greatest range.



Relationship between pedal force and electric assistance

- **How fast you are riding**
  Whenever you are cycling and put on a burst of speed, the assistance will increase until it reaches its maximum just before the highest assisted speed. It is then reduced automatically and cuts out at around 25 km/h in any gear.

7.2 RANGE

How far you can go with a fully charged battery with motor assistance is dictated by multiple factors:

- **Assistance selected**
  If you want to cover a large distance with motor assistance, you will cycle as much as possible in lower gears. This requires less power from the motor. In addition you should set assistance to a lower level (ECO).

- **Riding style**
  If you cycle in a high gear and set assistance to a high level, the motor will assist you with a great deal of power. However this will bring about increased consumption, which means you will have to charge the battery sooner.

- **Ambient temperature**
  The range on a charged battery is shorter when it is colder. For the greatest possible range the battery needs to be kept in a heated room such that it can be put on the bike at room temperature. The discharge temperature of the battery cells can range between -15 to +60°C.

- **Technical condition of your bike**
  Ensure your tyres are at the correct pressure (4 bar). Rolling resistance will be much higher if your tyres are too soft. If the brakes are rubbing this will also reduce range. Ask at your Gazelle specialist for more information.

- **Battery capacity**
  Owing to the current battery capacity - *section 4.3.2 "Checking capacity"*.

- **Topography**
  You pedal harder as you cycle uphill. The power sensor senses this and makes the motor work harder too.

Under ideal conditions the range of a seat tube battery can extend up to 130 km. With a carrier battery the range can be up to 160 kilometres. These ranges have been achieved under the conditions described below.

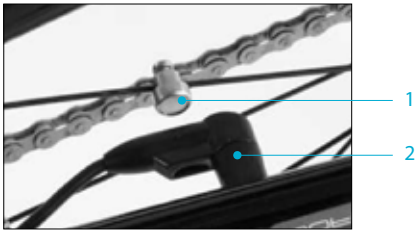
SEAT TUBE BATTERY	11 AH
Watt-hours	317 Wh
Amperes	8,8 Ah
Range Eco	70-100 km
Range Sport	50-70 km
Range Power	40-55 km

DRAGERACCU	SILVER	GOLD	PLATINUM
Watt-hours	313 Wh	416 Wh	482 Wh
Amperes	8,6 Ah	11,4 Ah	13,4 Ah
Range Eco	70-100 km	90-130 km	110-160 km
Range Sport	60-85 km	81-115 km	95-140 km
Range Power	50-70 km	65-90 km	80-110 km

7.3 WARRANTY AND SERVICE LIFE

The Impulse mid-mounted motor is a durable and maintenance-free drive unit. It is nevertheless a wearing component which is covered by a two-year warranty. As a result of the added performance, the wearing components such as the drive unit and brakes are subjected to higher loads than on a conventional bike. Components wear faster due to the effect of increased power.

8 DIAGNOSING AND REMEDYING FAULTS

Wording	Cause	Remedy
Battery gets hotter than 45°C while charging.	High ambient temperatures.	Suspend the charging process and allow the battery to cool down. Charge it in a cooler environment thereafter. If the problem persists, contact your Gazelle specialist, the battery may need replacing.
	Damaged battery.	Damaged batteries must not be charged nor must they be used again. If so, contact your Gazelle specialist, the battery may need replacing.
Battery will not charge.	Ambient temperature too.	You can charge the battery at temperatures between 0°C and 45°C.
Battery is damaged.	The bike has been in an accident or a spill or you have dropped the battery.	A damaged battery must be neither charged nor used again. If so, contact your Gazelle specialist, the battery may need replacing.
Battery range seems meagre.	Battery cell capacity is dependent on temperature.	Protect the battery against the heat by parking your bike in the shade for instance.
"No signal from speed sensor" / "SPEED"	Spoke magnet moved.	Check whether the spoke magnet has moved. The gap between the spoke magnet and the chain stay must be as small as possible (5 mm max.).  1 Spoke magnet 2 Speed sensor
	Speed sensor faulty	Visit your Gazelle specialist.
	Kabelverbinding defect	Visit your Gazelle specialist.
"Communication fault with battery"	Motor not connecting to the battery	Fit another battery.
		Visit your Gazelle specialist.
"Motor temperature too high"	The motor has reached too high a temperature. This could be due for instance to a long steep climb tackled in a high gear.	Allow the motor to cool down. After it has done so you can resume your ride.
Constant read-out: "PEDAL"	Faulty back-pedal switch	Visit your Gazelle specialist.

9 CLEANING

To clean the bike you will need to remove the battery.

Never use cleaning fluid, thinners, acetone or similar agents to clean your bike. You must not use abrasives or corrosive cleaning agents either.

Use the usual household cleaners and disinfectants (isopropanol) or water. Suitable cleaners are available from your Gazelle specialist. He can also provide advice. We recommend cleaning your bike with a damp cloth, a sponge or a brush.

9.1 BATTERY

Take care to ensure that no water gets into the battery while cleaning. The electrical components are sealed, however we advise against spraying the bike with a garden hose or cleaning it with a pressure washer. This could cause damage. If you wipe down the battery you must not touch the contacts or allow them to come into contact with one another. This could cause the battery to cut out.

9.2 MOTOR

You need to clean the motor in your bike on a regular basis. The best way of removing any dirt is using a dry brush or a damp (not wet) cloth. Cleaning must not be done with running water such as a hose or a pressure washer.

If water gets into the motor it could be ruined. Accordingly, take care while cleaning to ensure at all times that no fluid or moisture can get into the motor.

Do not clean the motor when it is warm, after a ride for instance. Wait until the motor has cooled down, otherwise it could be damaged.

Whenever the motor has been removed, for instance to clean it, under no circumstances must it be held or carried by the cables. The cables could actually break as a result.

If the motor is removed from the bike frame, the motor plug and the connector on the cable to the battery must be checked for contamination before being reconnected. If necessary, the can be cleaned with care using a dry cloth.

9.3 DISPLAY

You must only clean the display housing using a damp (not wet) cloth.

9.4 CONTROL UNIT

The control unit may be cleaned if necessary using a damp cloth.

9.5 CHARGER

You must always remove the plug from the mains socket before cleaning the charger. This will avoid a short circuit and personal injury.

Take care to ensure that no water gets into the charger while cleaning.

10 TECHNISCHE SPECIFICATIES

Motor	
Type	Impulse brushless electric motor with drive and freewheel
Nominal continuously rated power	250 W
Drive torque, max.	70 Nm
Nominal voltage	42 V
Operating temperature	-5 °C to 40 °C
Storage temperature	-10 °C to 50 °C
Protection class	IP 54 (dust and splash protection)
Weight, approx.	3.8 kg

Impulse Li-Ion seat tube battery	
Nominal voltage	36 V
Nominal capacity	11 Ah
Energy	396 Wh
Operating temperature	-5 °C to 40 °C
Storage temperature	-10 °C to 50 °C
Permissible temperature range	0 °C to 45 °C
Charge time	4 hours
Weight, approx.	2.85 kg

Impulse Li-Ion carrier battery		
Nominal voltage	36 V	36 V
Nominal capacity	8.7 Ah	11.6 Ah
Energy	313 Wh	417 Wh
Operating temperature	-5 °C to 40 °C	-5 °C to 40 °C
Storage temperature	-10 °C to 50 °C	-10 °C to 50 °C
Permissible temperature range	0 °C to 45 °C	0 °C to 45 °C
Weight, approx.	2.6 kg	2.6 kg

We wish you a great deal of pleasure using your new bike with an Impulse drive system.

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EC DECLARATION OF CONFORMITY 2014 CE

De fabrikant: Koninklijke Gazelle N.V.
Wilhelminaweg 8
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hereby declares that the following products:

Product description: Innergy
Model designation: Balance Hybrid F, Orange C Hybrid F, Miss Grace Hybrid F, Ultimate C1i Hybrid F, Ultimate T1i Hybrid F

Product description: Impulse
Model designation: Arroyo C7 Hybrid M, Arroyo C7+ Hybrid M, Arroyo C8+ Hybrid M, Grenoble C7 Hybrid M, Impulse EM C7, Impulse EM Speed, Orange C Hybrid M, Orange C7 Hybrid M, Orange C8 Hybrid M

Product description: Bosch
Model designation: Arroyo C8 Hybrid M, Chamonix T10 Hybrid M, Orange C7+ Hybrid M, Orange CX Hybrid M, Torrente T10 Hybrid M, Ultimate C1i Hybrid M, Ultimate T1i Hybrid M, Ultimate T2i Hybrid M

Product description: Panasonic
Model designation: Arroyo C7+ Hybrid F, Cadiz C8 Hybrid F, Chamonix C7 Hybrid F, Grenoble C7+ Hybrid F, Orange C7 Hybrid F, Orange C7+ Hybrid F, Orange C8 Hybrid F

Year of manufacture: 2011/2012/2013/2014
comply with all of the relevant requirements of the Machinery Directive (2006/42/CE Annex IX).

The machine complies with all of the requirements of the Electromagnetic Compatibility Directive (2004/108/EC).

The following harmonized standards have been applied:
CEN EN 15194 5-2008 Cycles. Electrically power assisted cycles. EPAC bicycles;
CEN EN 14764 10-2010 City and trekking bicycles. Safety requirements and test methods

Maarten Pelgrim
Manager Innovation

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